

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

February 2, 2024

TO: Katherine R. Herrera, Acting Technical Director
FROM: B. Caleca, P. Fox, N. Huntington, and P. Meyer, Resident Inspectors
SUBJECT: Hanford Activity Report for the Week Ending February 2, 2024

DNFSB Staff Activity: R. Csillag and D. Montierth were onsite observing a cold run at the 242-A Evaporator facility as part of an ongoing Board's staff review of facility readiness.

242-A Evaporator: WRPS is performing a cold run at the 242-A evaporator facility to support operator training and confirm equipment operability. This is the first operation since a cold run in June of 2019. The evaporator has not been available to support tank waste volume reduction since June of 2018, when it was shut down because of high recirculation pump vibrations (see 06/29/2018 report). A subsequent discovery of a failed transfer line prevented start up until the issue was resolved. WRPS recently completed installation of new transfer lines and has performed other necessary equipment repairs and upgrades to support future operations. Because of the extended shutdown, the contractor and DOE will perform a readiness assessment.

Tank Side Cesium Removal (TSCR): WRPS has completed the first TSCR system campaign (see 1/5/24 report). However, the cesium concentration in the TSCR system product tank remains above the waste acceptance criteria (WAC) for the Low-Activity Waste (LAW) Facility (see 10/20/2024 report). An evaluation of the condition determined that the TSCR system performed as expected but the concentrations are high because of residual cesium in tank AP-106, which result from previous waste storage. To resolve this problem, WRPS has proposed processing the material through the TSCR system a second time. WRPS believes reprocessing will result in cesium concentrations that comply with the LAW Facility WAC because sampling after batches 4 and 5 did not show an increase compared to the sample taken after batch 3. Additionally, laboratory testing has confirmed that the TSCR ion exchange media will effectively remove the cesium, even at the low existing concentrations. WRPS will perform frequent sampling to ensure the effectiveness of this effort. To mitigate any additional risk, BNI will implement Effluent Management Facility evaporator control set point changes and perform limited equipment and facility modifications to ensure the reprocessed waste can be effectively and efficiently processed through the facility. If DOE approves the proposal, WRPS will implement the plan in March after they complete an ongoing maintenance outage at the TSCR facility. They expect to complete the reprocessing campaign by the end of the calendar year.

Waste Treatment Plant: A resident inspector observed a contractor Safety-in-Design Integration Team (SDIT) meeting to discuss proposed hazard control changes for the High-Level Waste (HLW) facility. The SDIT is considering whether the HLW melter shell needs to be credited as a safety significant control given it is not the primary confinement for glass and that the melter cave and confinement ventilation system are credited to mitigate all accidents that release material from the melter. Also, proposed changes to the WAC for HLW have reduced estimated dose consequences for potential accidents caused by episodic hydrogen generation releases. Consequently, the SDIT is considering safety interlocks or specific administrative controls as an alternative to crediting agitators to prevent hydrogen detonations but will not select a preferred control until the HLW hydrogen control strategy is discussed with DOE.